

Application Number : 10/098,714 Confirmation Number: 3043
Applicant : Kevin D. MacLean et al.
Filed : 15 March 2002
TC/A.U. : 2128
Examiner : Alhija, Saif A.

Docket Number : NMTC-0770
Customer No. : 30,185

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Sir:

Applicant respectfully requests a pre-appeal brief conference to review the herein-identified matters. More specifically, Applicant requests a review of the argument that the rejection under 35 U.S.C § 102(b) based on Cobb is improper.

ARGUMENTS IN SUPPORT OF THE PRE-APPEAL BRIEF REQUEST FOR REVIEW

Summary of Status

In the Official Action mailed on **31 July 2007** (hereinafter “0731 OA”), Examiner reviewed claims 1-35. Claims 1-35 were rejected under 35 U.S.C. § 102(b) as being anticipated by Cobb (WO 00/67074, hereinafter “Cobb”). In the Advisory Action mailed **5 October 2007** (hereinafter “1005 AA”), Examiner maintained the same rejections.

Request for Review

Examiner rejected independent claims 1, 11, 21, 31, 32, and 33 under 35 U.S.C. § 102(b) as being anticipated by Cobb. Applicant respectfully disagrees. In order to anticipate a claim, each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference (see MPEP § 2131). Applicant avers that the rejections under 35 U.S.C. § 102(b) are improper because Cobb does not disclose all of the claim limitations of the independent claims in the instant application.

Simulation of a Current Solution

In particular, Cobb does not describe using a previously-corrected layout **as an initial input to a simulation to determine OPC corrections for a current layout**. In other words, Cobb does not disclose “performing one or more repetitions of simulating a current solution for the target cell to produce a current simulated layout.”

In the Office Action Response filed **4 September 2007** (hereinafter “0904 OAR”), Applicant provided a detailed analysis of the distinctions between the optical proximity correction (OPC) in embodiments of the present invention and the OPC in the Cobb system. Applicant pointed out that the Cobb system is limited to either: (1) reusing an already-calculated solution for a layout or (2) recalculating the entire layout. Cobb does not disclose “using the previously calculated solution for the preceding cell **as an initial input to the iterative process for the target cell**, wherein the iterative process involves one or more repetitions of simulating a current solution for the target cell to produce a current simulated layout.” Please see pages 13-17 of the 0904 OAR for Applicant’s complete argument.

Equivalency Determination

Moreover, Cobb’s description of “equivalent” cell layouts is fundamentally distinct from the “similar” cell layouts in embodiments of the

present invention. In other words, Cobb does not disclose “wherein the target cell is similar to a preceding cell if ... a layout of a target cell matches a layout of a preceding cell, but an environment surrounding the target cell differs from an environment surrounding the preceding cell.”

The Cobb system is limited to using “equivalent” windowed areas, however, the only “equivalent windowed areas” that are disclosed by Cobb have the **“same number of geometric figures, and the sizes and relative location of the geometric features are all within predetermined tolerance levels”** (see Cobb, page 6, par. 2).

In contrast, in embodiments of the present invention a target cell is similar to a preceding cell if a layout of a target cell matches a layout of a preceding cell, but an environment (containing geometries) surrounding the target cell differs from an environment surrounding the preceding cell (see instant application, page 5, lines 4-13). Moreover, embodiments of the present invention can perform the iterative OPC process on the border region located just inside the outside edge of the target cell which is affected by the different geometries in the environment surrounding the target cell (see instant application, page 5, lines 10-11).

Applicant avers that Cobb’s all-encompassing “other criteria” statement relating to windowed-area equivalency (see Cobb, page 6, par. 2, last sentence) does not disclose the border region in embodiments of the present invention.

Hence, the rejection of claims 1, 11, 21, 31, 32, and 33 under 35 U.S.C. § 102(b) as being anticipated by Cobb improper because Cobb does not disclose all of the limitations of the independent claims of the instant application. Applicant therefore respectfully requests the withdrawal of the rejection of these claims under 35 U.S.C. § 102(b).

Response to Examiner Arguments

In the 1005 AA, Examiner avers “the reference to a correction post-processor in Cobb was to illustrate that the layouts are *further corrected regardless of recalculation*” (see 1005 AA, page 3, emphasis added). Applicant respectfully disagrees. Applicant points out the correction post-processor disclosed in Cobb is limited to **applying corrections determined by a separate simulator** to the IC mask layout **without further calculations or simulations**. Please see page 16 of the 0904 OAR for Applicant’s complete argument.

In addition, in the 1005 AA, Examiner avers:

It is unclear where a functional or patentable distinction lies [between the claims in the instant application and Cobb] since the resultant of Cobb is explicitly corrected and would therefore avoid the necessity of having to re-perform the simulations from scratch (see 1005 AA, page 3).

In other words, Examiner avers that there exists functional equivalence between embodiments of the present invention and the Cobb system because the Cobb system’s reuse of OPCs is equivalent to the present system performing one or more simulations on an already-corrected target cell (which Examiner argues will always produce the same result).

Applicant respectfully disagrees. Unlike the Cobb system, **the simulation results output from the simulator in the present invention can differ from the preceding simulation results**. For example, during the simulation in the present invention, the simulator can correct previous simulation results in the proposed solution (see instant application, page 11, lines 21-23). In other words, the present invention can correct the preceding solution when the prior OPCs are not correct with respect to a current set of OPC rules (e.g., when revised OPC rules are introduced for a new fabrication process or when there is an actual error in the OPC for the preceding cell) (see instant application, page 11, lines 21-23). In this case, in the present invention, the OPCs output from the simulator can differ from

the OPCs for the preceding cell because the simulator corrects the error(s) in the preceding OPCs.

Moreover, the present invention can reuse the preceding solution as an input to the simulator where there is an approximately 5% difference in layout between the target cell and the preceding cell (see instant application, page 5, lines 14-19). In this case, in the present invention, the OPCs output from the simulator can differ from the OPCs for the preceding cell because of the differences in the layout between the target cell and the preceding cell.

CONCLUSION

For the foregoing reasons, Appellant respectfully requests reversal of the Examiner's rejections as set forth in the Final Office Action and subsequent Advisory Action, and requests that the pre-appeals panel direct allowance of all pending claims of the present application.

Respectfully submitted,

By /Anthony P. Jones/
Anthony P. Jones
Registration No. 59,521

Date: 31 October 2007

Anthony Jones
Park, Vaughan & Fleming LLP
2820 Fifth Street
Davis, CA 95618-7759
Tel: (530) 759-1666
Fax: (530) 759-1665
Email: tony@parklegal.com

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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number (Optional)

NMTC-0770

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Signature _____

Typed or printed name _____

Application Number

10/098,714

Filed

15 March 02

First Named Inventor

Kevin D. MacLean

Art Unit

2128

Examiner

Alhija, Saif A.

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

Note: No more than five (5) pages may be provided.

I am the

applicant/inventor.

assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

attorney or agent of record. 59,521
Registration number _____

attorney or agent acting under 37 CFR 1.34.

Registration number if acting under 37 CFR 1.34 _____

/Anthony Jones/

Signature

Anthony Jones

Typed or printed name

530-759-1666

Telephone number

31 October 2007

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required.
Submit multiple forms if more than one signature is required, see below*.

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